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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/905,529 | 07/13/2001 | Feng Qian | LSI-003-PAP | 3481 |

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| EXAMINER | |
|---|---|
| JUNTIMA, NITTAYA | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2663 | |

DATE MAILED: 09/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/905,529 | QIAN, FENG | |
| | Examiner | Art Unit | |
| | Nittaya Juntima | 2663 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *13 July 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,12,14 and 16-20* is/are rejected.

7)☒ Claim(s) *3-11,13 and 15* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 July 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *1/25/02*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Information Disclosure Statement*

1. The information disclosure statement filed 1/25/02 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication (i.e. items 3 and 4) or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

### *Drawings*

2. The drawings are objected to because:

- Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated ("Referring to FIGURE 1 and as is well known..." line 30 on page 2). See MPEP § 608.02(g).

- Element with numeral reference 148 should be labeled as "channel" for clarity purposes.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must

be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### *Specification*

3. The disclosure is objected to because of the following informalities:

- the status and application numbers of the U.S. applications on cited on pages 1, 2, and 15 should be updated;

- lines 3-10 on page 2 should be changed as Figure 1 of this application is not described in detail in the U.S. application number 09/687,700 (U.S. patent number 6,891,853).

Appropriate correction is required.

### *Claim Objections*

4. Claims 16 and 17 are objected to because of the following informalities:

- in claim 16, ll 5, "adapted" should be changed;

- in claim 17, ll 1, "comprise" should be changed to "comprises"

Appropriate correction is required.

*Claim Rejections - 35 USC § 102*

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1 and 16-20 are rejected under 35 U.S.C 102(e) as being anticipated by Lee et al. ("Lee") (USPN 6,621,873 B1).

Regarding claims 1 and 20, as shown in Fig. 5, Lee teaches a frame matching method for use in a communication system, wherein the communication system (a mobile communication system, col. 4, ll 6-10) includes one transmitting device (since frame is transmitted from a puncturing device in Fig. 3, therefore, a transmitting device must be inherently included in a mobile communication system, col. 4, ll 6-10) and one receiving device (since frame is transmitted from a puncturing device in Fig. 3, therefore, a receiving device must be inherently included in a mobile communication system, col. 4, ll 6-10), and wherein the transmitting device includes an encoder (Fig. 1, col. 4, ll 57-64) and a rate matching device (a puncturing device in Fig. 3) for matching data into a standard data frame, the method comprising the steps of:

a) obtaining a data set (data input from the turbo encoder in step 501) and the standard data frame (a frame according to symbol rate as a result of step 505, col. 4, ll 57-64), wherein the data set comprises a plurality of puncture pattern groups (5 symbol frames and 6 tail symbols part, col. 4, ll 57-64);

b) determining a standard puncture pattern (a read pattern from the patterns

shown in Figs. 4A-4C) and a puncture disable quantity (symbols that are not punctured in a read pattern which is part of the patterns as shown in Figs. 4A-4C) based upon the data set obtained in step (a) (a corresponding puncturing pattern is read in step 504 upon detecting a code rate of the received data, col. 6, ll 8-17);

c) matching the data set into the standard data frame utilizing the standard puncture pattern and the puncture disable quantity obtained in step (b) (col. 6, ll 18-31, see also col. 5, ll 1-7).

Regarding claim 16, as shown in Fig. 3, Lee teaches a coder (a puncturing device), including:

a) an input node (input port that receives 5 symbol frames and 6 tail symbols part from the turbo encoder of Fig. 1) for receiving a data set comprising a plurality of puncture pattern groups (5 symbol frames and 6 tail symbols part) (col. 4, ll 57-61);

b) a standard puncturing pattern device (a frame generator 133), operatively coupled to the input node, puncture the data set, disable puncturing for an individual puncture pattern group (groups of symbols are punctured according to the pattern groups and X(t) group is not punctured when R = ½, 1/3, and ¼, col. 5, ll 1-24);

c) an output node (output port that transmits the transmission frame according to symbol rate), operatively coupled to the standard puncturing pattern device, capable of outputting data from the standard puncturing pattern device (col. 5, ll 1-7).

Regarding claim 17, Lee further teaches that the coder comprises a microprocessor (controller 135 in Fig. 3), operatively coupled to the standard puncturing pattern device (a frame generator 133), capable of transmitting a plurality of control commands to the standard

puncturing pattern device, wherein the plurality of control commands comprise information regarding disable puncturing (col. 5, ll 7-24).

Regarding claim 18, Lee teaches that the standard puncturing pattern device (a frame generator 133 in Fig. 3) is capable of operating in a puncturing data mode (puncture the symbols where X is marked in the square boxes of the puncturing patterns shown in Figs. 4A-4C) and a disable puncturing data mode (not puncture the symbols according to the puncturing patterns shown in Figs. 4A-4C) (col. 5, ll 1-24).

Regarding claim 19, Lee further teaches that the standard puncturing pattern device utilizes a first puncture pattern (not defined, reads on where X is the square boxes of the puncturing patterns shown in Figs. 4A-4C) when operating in the puncturing data mode and a second puncture pattern (where X is not marked in the square boxes of the puncturing patterns shown in Figs. 4A-4C) when operating in the disable puncturing data mode (col. 5, ll 1-24).

7. Claims 12 and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Koehn et al. ("Koehn") (USPN 6,819,718 B1).

Regarding claim 12, as shown in Fig. 2, Koehn teaches a frame matching method for use in a communication system (Fig. 2) which includes at transmitting device (6'-18, collectively), an encoder (EN in Fig. 3), a rate matching device (the rate converter 12 Figs. 2 and 3), the method comprising the steps of:

a) obtaining a data set (the encoded data frame EF is generated and fed into the puncturer PR, col. 5, ll 26-37);

b) selecting a transmission data frame (a transport data block) from a plurality of

standard data frames (data blocks 14) ("...converter 12, which operates to encoded the data frame, and then puncture or repeat data bits.., to the effect of generating a transport data block, which fits with the size of the data blocks 14," col. 5, ll 28-31, therefore, a transport data block must be selected from a plurality of data blocks 14 for transmission);

c) determining whether data repetition is required for matching the data set to the transmission frame, and if so, performing data repetition (col. 5, ll 26-31, see also col. 1, ll 48-56);

d) determining whether data puncturing is required for matching the data set to be the transmission data frame, and if so, performing data puncturing by puncture disabling techniques (the selection algorithm which does not puncture when $e < 0$) (col. 5, ll 26-31 and col. 6, ll 19-53, see also col. 1, ll 48-56).

Regarding claim 14, Koehn teaches determining whether a data length associated with the data set is according to following equation: $L < N2$, wherein L (the size of the encoded data frame) is the data length associated with the data set and N2 (the size of the transport block) is the transmission data frame (bits of the encoded data frame are repeated when the encoded data frame is smaller than the pre-determined size of the transport block, col. 5, ll 26-31, see also col. 1, ll 48-56).

### *Claim Rejections - 35 USC § 103*

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. ("Lee") (USPN 6,621,873 B1) in view of Yoon et al. ("Yoon") (US 2004/0109495 A1).

Regarding claim 2, Lee fails to explicitly teach obtaining a data length, a puncture retaining ratio, and a bit retention quantity.

However, Yoon teaches an example of obtaining a data length (L = 7675), a puncture retaining ratio (not defined, reads on I/N = 1535/3072, where I = information bits, see also paragraph 0051), and a bit retention quantity (L-N = 7675-3072). See paragraph 0055.

Given the teaching of Yoon, it would have been obvious to one skilled in the art to incorporate obtaining a data length, a puncture retaining ratio, and a bit retention quantity into the teaching of Lee. The suggestion/motivation to do so would have been to enable one to calculate the actual coding rate as taught by Yoon (paragraph 0055).

### *Allowable Subject Matter*

10. Claims 3-11, 13, and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### *Conclusion*

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nittaya Juntima whose telephone number is 571-272-3120. The examiner can normally be reached on Monday through Friday, 8:00 A.M - 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nittaya Juntima
September 19, 2005
NJ

RICKY NGO
PRIMARY EXAMINER
9/15/05